

### **Abstract of the Disclosure**

The present invention relates to proximity sensors. It also relates to proximity sensors in electronic devices using lightguides. More specifically the invention relates to a simple self monitoring of optical proximity sensors. This can be achieved according to one embodiment of the present invention by a system of lightguides for the use in a proximity sensor. The lightguide system comprises a transceiver lightguide to direct transmitter to a predefined direction, and a receiver lightguide to direct transmitter light reflected from an object towards a receiver, where the transceiver and receiver lightguides comprise diffracting surfaces to direct a part of the light from the transmitter as a self monitoring beam in a direction towards a receiver.